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ABSTRACT

The research on which this paper is based was conducted in a large, modern library which had approximately 107 full-time employees. The sample selected for study consisted of 67 employees, 22 male and 45 female. The original study explored the relationships between six areas of job satisfaction and 55 individual and situational variables defining the work setting of the library. This article isolates the variable of Education in a special analysis which is intended to show whether any connection exists between the independent variable of educational level and the criterion variable of job satisfaction. The findings of this study are inconclusive with regard to the relationship (if any) subsisting between education and job satisfaction. More research is needed to determine whether the equivocacy in the education/satisfaction relationship found in this study is an episodic finding solely or whether it is, in fact, a more universal phenomenon. (Related studies are: LI003816 through 003820.) (Author/NH)

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AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN EDUCATION AND JOB SATISFACTION IN AN ON-GOING ORGANIZATION

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AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN EDUCATION AND JOB SATISFACTION IN AN ON-GOING ORGANIZATION*

Introduction

This paper will explore the relationship which exists (if any) between Education, on the one hand, and Job Satisfaction, on the other hand. The research on which this paper is based was conducted in a large modern library located in the Southwest. The approximate number of employees (full-time) studied was 107. The final sample selected for study consisted of 22 male employees and 45 female employees, for a total sample of 67 employees. This library will be referred to as Library A in order to preserve anonymity until the total series of investigations has been fully completed.

The original study explored the relationships between six areas of job satisfaction and fifty-five individual and situational variables defining the work setting of the library. The investigators have reported many of the findings in other articles dealing with various aspects of the study.

This article is intended to isolate the variable of Education in a special analysis which, hopefully, will show if any connection exists between the independent variable of Educational Level and the criterion variable of Job Satisfaction.

The investigators will not describe in detail the instrument used in this study as this description can be found in other reports and articles

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*This is the sixth of a series of articles reporting results of the North Texas State University Research Studies in Job Satisfaction. This research is financed by a North Texas State University Faculty Research Grant made to Dr. J. D. Dunn.

written previously. The instrument used to measure job satisfaction was the Job Descriptive Index (JDI), an instrument developed by Patricia Cain Smith during the "Cornell Studies of Satisfactions" which occurred during the period 1959 to 1969. Readers are referred to the book published in 1969 by the Cornell researchers: Patricia Cain Smith, Lorne M. Kendall, Charles L. Hulin, The Measurement of Satisfaction in Work and Retirement: A Strategy for the Study of Attitudes, Chicago: Rand McNally and Company, 1969. The normative tables included in this book cover a wide variety of individual and situational stratification variables. Many insights can be gleaned from the configuration of satisfaction scores comprising the normative tables. Density functions can be prepared indirectly from the normative tables. These functions are very efficient for the purpose of discerning and explaining the dynamics of job satisfactions in on-going organizations.

The Method

There are several methods available to demonstrate relationships which exist among research variables. The researcher must face the dilemma posed by the existence of the null hypothesis. This hypothesis says that there is no relationship between phenomena. This tentative hypothesis must be disproved if any relationships are to be demonstrated. In terms of our present discussion the null hypothesis asserts that there is no relationship between phenomenon A (Education) and phenomenon B (Job Satisfaction). It is the thesis of this paper that the null hypothesis may be inapplicable to the data generated by our study.

Figure 1 illustrates the use of density functions to demonstrate

Figure 1
Density Functions Showing the Relationships Between Income and Job Satisfaction

the relationship existing between Income and Job Satisfaction. The abscissa measures one component of job satisfactions, the JDI (work) category. This measure is one of the five categories of satisfactions developed by Patricia Cain Smith, viz., work, pay, promotion, supervision, and coworkers. The specific area of satisfaction depicted in Figure 1 is the work (itself) category of job satisfaction. The interested reader can find the data underlying Figure 1 on page 107 of the Smith text, cited supra.

Figure 1 was constructed by plotting the cumulative functions described in the normative tables. Each column of the normative tables is a given density function. By plotting each of the columns of a given normative table, it is then possible to convert the cumulative functions to density functions by a simple technical conversion procedure that is easy to apply. Once the conversion is completed the patterns inherent in the density functions can be examined at leisure in order to ascertain if any relationships, in fact, do obtain, between the principle of stratification depicted in the given normative table and any one of the selected areas of job satisfaction.

There is a clear, univocal relationship depicted in Figure 1 between Income, on the one hand, and work satisfaction, on the other hand. The relationship is clearly a positive one, as shown by the advancement of the density functions from left to right on the diagram. If the density functions had proceeded from right to left, the relationship would have been a negative one.

Figure 1 is useful in that it gives us a kinematic snapshot, as it were, of the frequency functions defining the various strata (columns) of the normative tables based on Income as the selective principle of stratification. The arrows are placed on the density functions in order to emphasize the relative motions

(kinematics) of the several density functions as they progress from left to right on the statistical diagram.

We can conclude that work satisfaction obviously increases with Income level. Thus, one way to increase the satisfaction levels of employees with respect to this aspect of the job setting is to increase pay levels. Conversely, if (for whatever reasons) it was considered desirable to decrease levels of satisfaction in this category of work, then the pay of employees should be cut. This is an oversimplification, but illustrates the basic principles of interpretation involved when we are dealing with composite or density curves which define mass feelings of employees.

Figure 2 is meant to illustrate how density function diagrams can be

Figure 2
Theoretical Models Illustrating the Principles of Interpretation Applicable to Diagrams of Density Functions

interpreted for the purpose of determining if any relationships might be lurking among the basic variables studied. Obviously these diagrams are of heuristicvalue solely since the actual density functions plotted from realistic normative tables would take on a variety of shapes and forms dependent, for their validity, solely upon the nature of the underlying data. However, for the purpose of illustrating possible ranges of application, the density functions modeled in Figure 2 can be profitably studied. Other variations on the basic theme will doubtless occur to the reader.

Figure 3 was developed by the investigators from the output data

Figure 3
Density Functions Illustrating the Equivocal Relationship Between Education And Job Satisfaction For Male Employees of Library A (N=22)

generated during computer run number 14 of the series of computer analyses made on the composite data of the research study in question. Nineteen computer analyses (runs) were performed on the basic or raw data collected

during the course of the study. This paper is examining only one (miniscule) part of the data--but the crucial part which will tell us whether, in fact, a relationship does exist between Education and Job Satisfaction, or whether, on the other hand, some other hypothesis applies. Either way the configuration of data in Figure 3 will reveal what is of signal importance from a research viewpoint--the nature of the hypothesized relationship.

The relationship is much more complex than we supposed. If we had to select one of the diagrams defining theoretical relationships in Figure 2, we would be forced to categorize the relationship as the "D" type, i.e., the "Equivocal" variety of relationship depicted in the series of relationships (see Figure 2). Why is this? The density function can be viewed as a dynamic entity in Figure 3. It marches from right to left in the series 1, 2, and 3. This series defines 3 levels of education. Each level of Education is depicted by a single density function. Each of the density curves constitutes one column in a normative table.

It appears that the motion of the density function (Figure 3) corresponds, in general schema and detail, to the "B" model in Figure 2. If this were the only motion involved, we could immediately characterize the relationship as a negative one. But motion in the opposite direction belies this interpretation. Now we see the density function moving from left to right. The series 3, 4, and 5 illustrates the kinematics of this movement. This motion corresponds to the "A" model of Figure 2. This relationship is clearly a positive one.

So it appears that the relationship between Education and Job Satisfaction is "equivocal" for the 22 male employees in Library A. Are there any lessons for management implicit in this conclusion? Before we attempt to answer this question, we will look at another piece of the puzzle.

Figure 4 shows the equivocal nature of the relationship between

Figure 4
Illustrating Relationship of Education and Job Satisfaction

Education and Job Satisfaction from a slightly different angle. Here we are using a mathematical function to demonstrate the existence or nonexistence of a hypothesized relationship. This method differs, in certain respects, from the method we are using in Figure 3 which is based upon a statistical function, viz., the density function.

The equivocacy inherent in Figures 3 and 4 admits of no easy solution. A relationship riddled with such equivocacy is tantamount to no answer at all. Figure 3 shows the density function shifting first this way and then that. Figure 4 reveals a mathematical formulation of the relationship which further obscures any meaningful conclusion an investigator might make in regard to the existence or nonexistence of a relationship.

Figure 5 shows density functions for the female employees of Library A

Figure 5
Density Functions Illustrating the Equivocacy of the Relationship Between Education and Job Satisfaction For Female Employees of Library A (N=45)

(N=45). The pattern of equivocacy is repeated for the females, perhaps to an even greater degree of obscurity than for the males in the sample. Looking at the kinematics of the female density function in Figure 5, we see it moving from left to right (series 1 and 2); then from the right to the left (series 2 and 3); and finally, a complete reversal of motion again--this time from left to right (series 3 and 4). Such erratic patterns of behavior for the density function are clearly autithetical to the establishment of any univocal relationship between the variables in question. The general rule which can be implied from a consideration of the statistical functions (density functions) and the mathematical functions

($y=f(x)$) is that a uniform pattern of kinematics must be apparent from an inspection of both modalities of data. For the two recognized ways of establishing relationships (mathematical functions and statistical functions) are but two separate and similar mirrors catching the reflection of the data from two slightly different angles of reflection. What can be deduced from this metaphorical mish-mash? The answer to this question is univocal and clear.

Summary and Conclusion

Researchers should not become discouraged when their investigations fail to establish relationships among the variables in question. If there does exist an equivocacy in basic relationships then let us boldly report the exact truth of our findings, unashamed and with our eyes wide open. For it is clear that our findings are inconclusive with regard to the relationship (if any) subsisting between Education and Job Satisfaction. We have no reason at all to feel uneasy over this (inconclusive) conclusion however. The literature is full of reports of studies which have found a very equivocal, inconclusive relationship existing between satisfaction and productivity. It is just as important to know that a relationship is equivocal, as to know that it is univocal.

More research needs to be done in order to determine if this equivocacy in the Education/Satisfaction relationship is an episodic finding solely, confined to a few aberrant research studies--or whether it is, in fact, a more universal phenomenon. Until this issue is settled the researcher is powerless to advise management in this area. What is even more appalling is that here is an area of knowledge (and truth) that remains dimmed and obscure. Such a situation is intolerable to the true seeker after truth who is dedicated to illumining as many dark corners of the managerial

landscape as is humanly possible, considering the limitations presently existing in this area in terms of manpower availability, research budgets, and the proper spirit of motivation to labor in the research mines for extremely thin slivers of knowledge among all the muck and dross of inconsequential ore.

The topic of job satisfactions is a vital one. It has meaning and significance in its own right. Organizational effectiveness can never be at peak form if the mental health of the employees in the organization is not considered by top management to be a legitimate area of inquiry. The discovery of relationships between job satisfactions and other key variables (e.g., Education) must be pursued aggressively and with the recognition of the truism that the true meaning of such relationships as exist is not to be found in the univocacy or equivocacy of such connections but in the inner managerial spirit with which such research goals are pursued. The managerial process will be enriched and strengthened to the extent that blank areas of knowledge can be filled in with research data which is pertinent to managerial process and change.

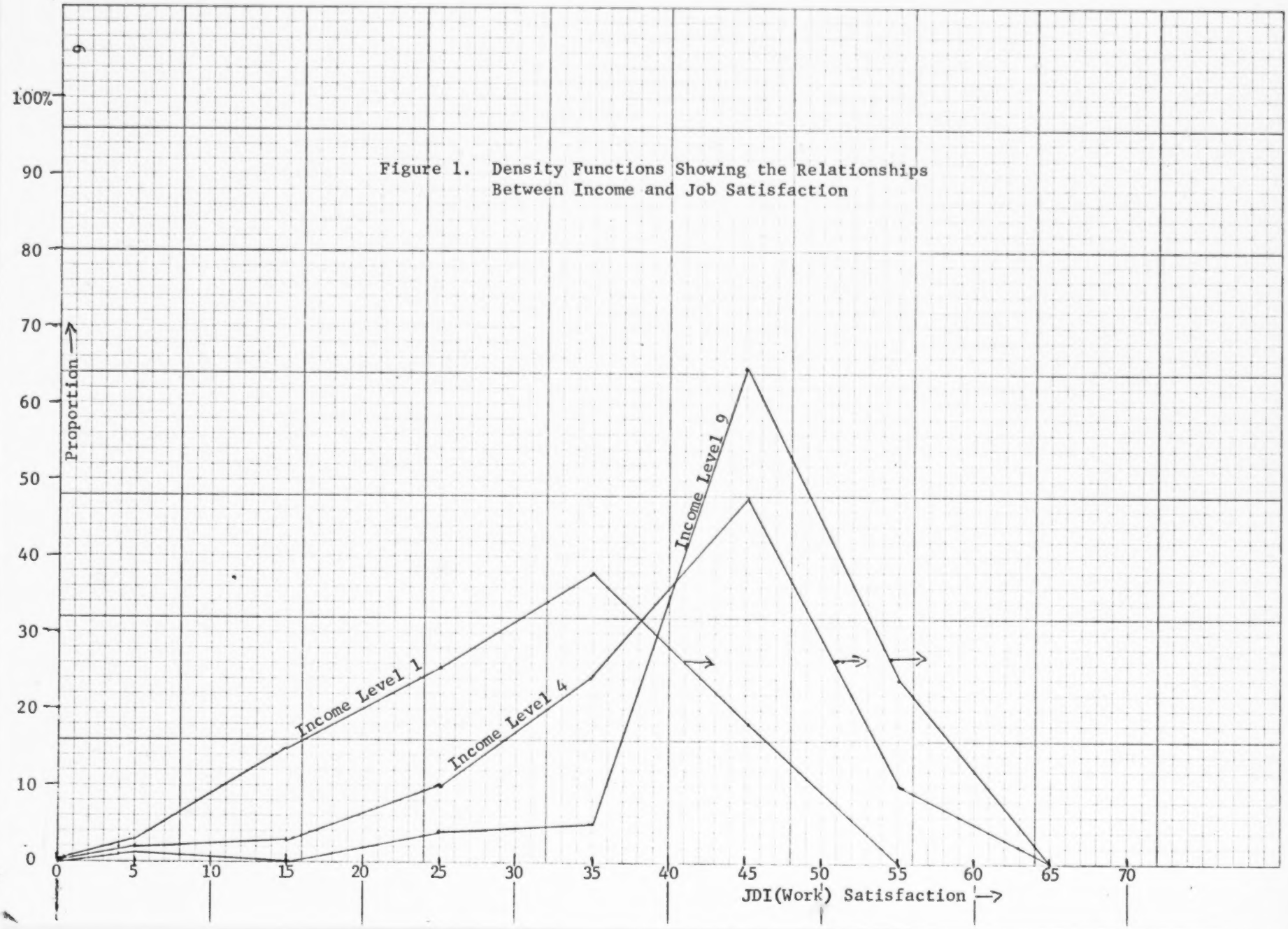


Figure 1. Density Functions Showing the Relationships Between Income and Job Satisfaction

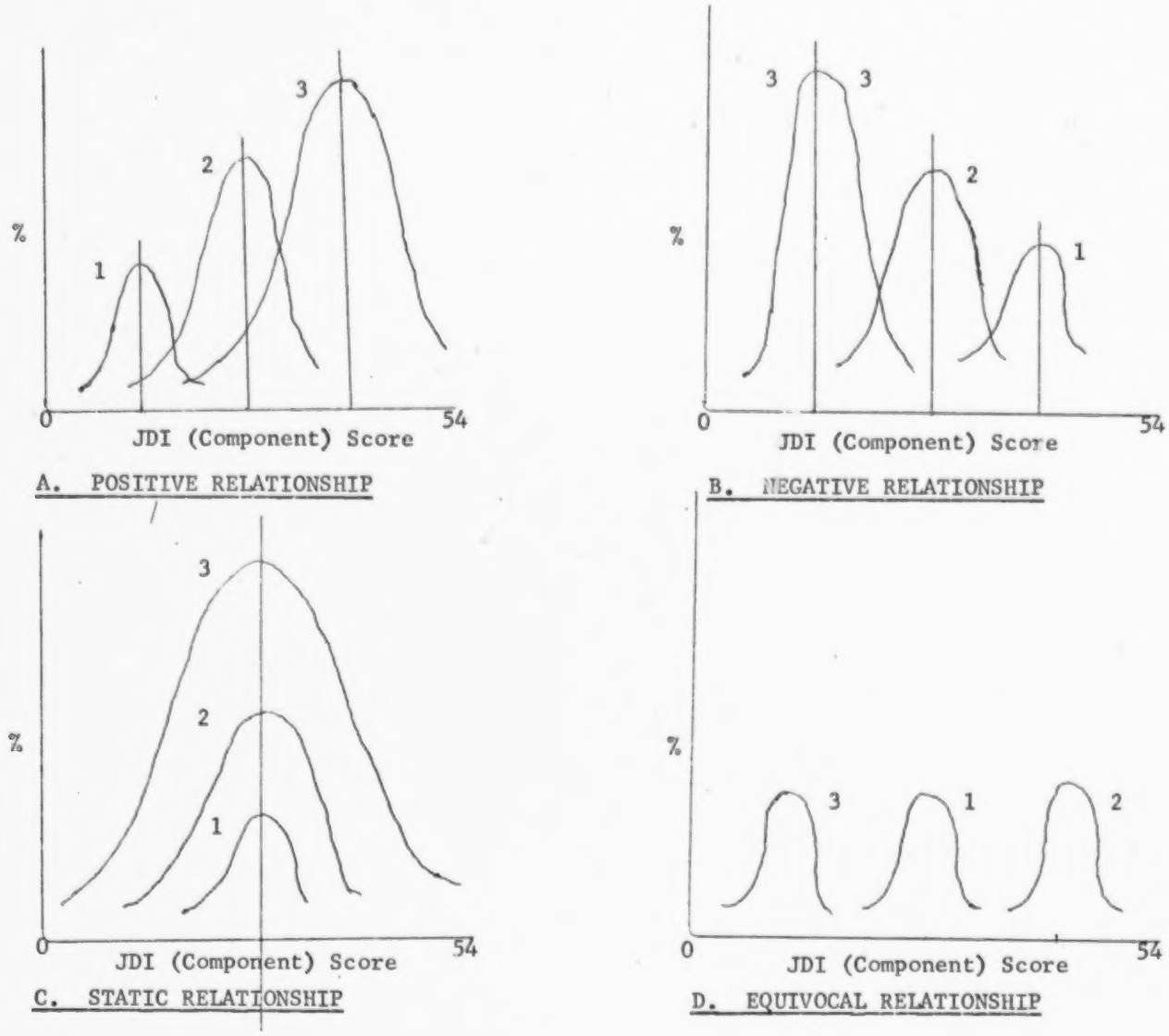
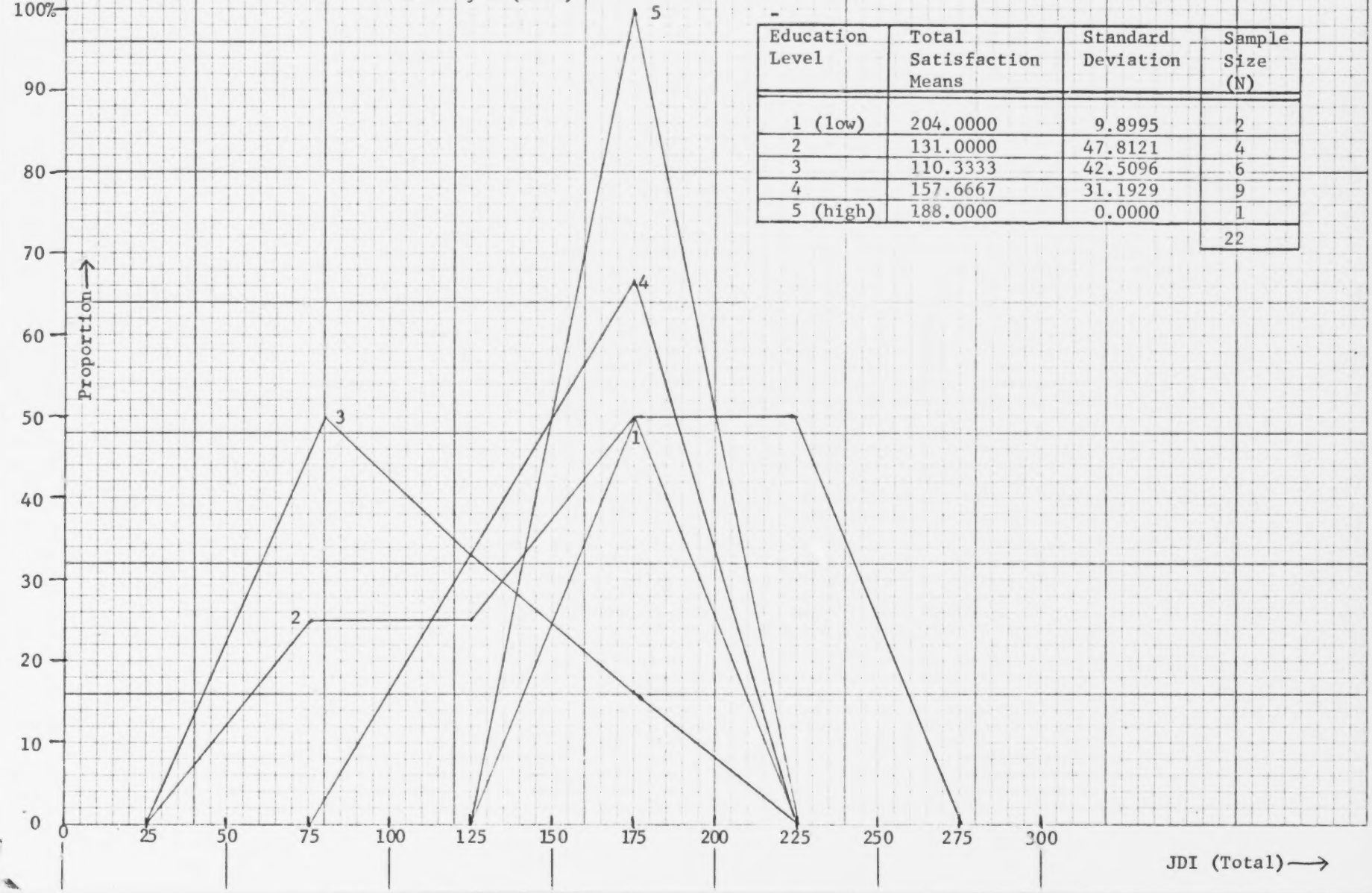


Figure 2. Theoretical Models Illustrating the Principles of Interpretation Applicable to Diagrams of Density Functions

Figure 3. Density Functions Illustrating the Equivocal Relationship Between Education and Job Satisfaction for Male Employees of Library A (N=22)



Education Level	Total Satisfaction Means	Standard Deviation	Sample Size (N)
1 (low)	204.0000	9.8995	2
2	131.0000	47.8121	4
3	110.3333	42.5096	6
4	157.6667	31.1929	9
5 (high)	188.0000	0.0000	1
			22

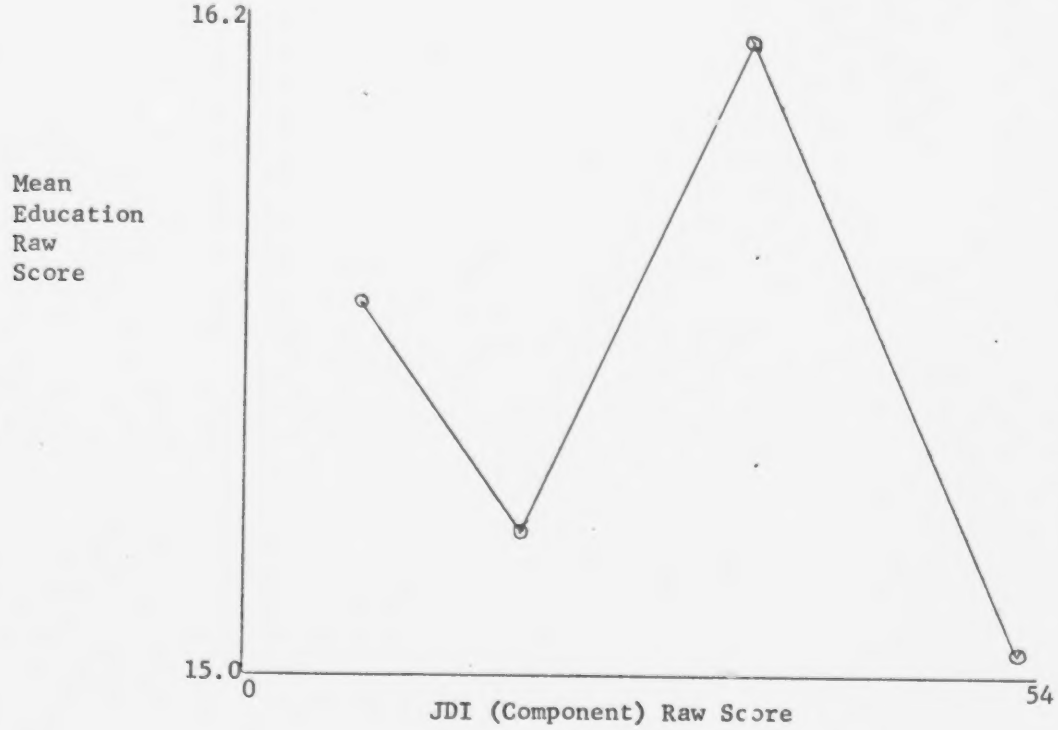


Figure 4. Illustrating Relationship of Education and Job Satisfaction

Note--This data reflects male and female employees (N=67) in Library A. All five JDI (Components) are collapsed into the data results.

Figure 5. Density Functions Illustrating the Equivocacy of the Relationship Between Education and Job Satisfaction for Female Employees of Library A (N=45)

Education Level	Total Satisfaction Means	Standard Deviation	Sample Size (N)
1 (low)	142.2727	38.5126	11
2	148.0000	59.2706	7
3	126.2500	48.4761	16
4 (high)	164.0909	18.4361	11
			45